Volume 202 1988

Contents

Letters to the Editor

The colours of G″, the proposed optical counterpart of Geminga
Bignami, G.F., Caraveo, P.A., Paul, J.A. L1

Rotating and counter-rotating cores in elliptical galaxies
Bender, R. L5

The structure of Lyman-α systems
Milgrom, M. L9

A disconnection event in the ion tail of Comet Bradfield 1987s
Cremonese, G,, Fulle, M. L13

Outbursts in TV Columbae: Walraven photometry and CCD spectroscopy
Schwarz, H.E., van Amerongen, S., Heemskerk, H.M., van Paradijs, J. L16

Two IRAS sources with high velocity outflow similar to OH 231.8+4.2
te Lintel Hekkert, P., Habing, H.J., Caswell, J.L., Norris, R.P., Haynes, R.F. L19

Imaging polarimetry of the jet in M 87
Schlötelburg, M., Meisenheimer, K., Röser, H.-J. L23

The nature of the carbon stars in the galactic bulge
Azzopardi, M., Lequeux, J., Rebeirot, E. L27

Cosmology

Recent observations of cosmic ray antiprotons and a critical assessment of the theories of their origin
Stephens, S.A., Golden, R.L. 1

Extragalactic astronomy

Star formation histories in galaxies: confrontation of theory and observation
Bica, E., Arimoto, N., Alloin, D. 8

The supernova 1982 B in NGC 2268
Ciatti, F., Barbon, R., Cappellaro, E., Rosino, L. 15

Chemical abundances in galaxy clusters: a theoretical approach
Matteucci, F., Vettolani, G. 21

Star-forming knots in Mk 178
González-Riestra, R., Rego, M., Zamorano, J. 27

The large-scale radio continuum structure of the Sombrero galaxy (NGC 4594)
Bajaja, E., Dettmar, R.-J., Hummel, E., Wielebinski, R. 35

II Zw 23: A galaxy in formation?
Keel, W.C. 41

(RN) Medium resolution spectroscopy of the Supernova 1986 O in the spiral galaxy NGC 2227
Arsenault, R., D'Odorico, S. 55

A neutral hydrogen study of interacting galaxies in the NGC 697 group
van Moorsel, G.A. 59

What is the mean redshift of the Virgo cluster?
Arp, H. 70

Erratum: Young stellar content of nearby galaxies. I. NGC 300
Pierre, M., Azzopardi, M. 323

Formation, structure and evolution of stars

Spectroscopic identification of white dwarfs in galactic clusters. IV. NGC 2168
Reimers, D., Koester, D. 77

(RN) Optical spectroscopy of the Be star associated with the X-ray transient EXO 2030+375
Janot-Pacheco, E., Motch, C., Pakull, M.W. 81

A probable non-degenerate H-burning flash on the white dwarf of the symbiotic slow nova V 1329 Cygni
Munari, U., Margoni, R., Mammano, A. 83

Turning on and off mass transfer in cataclysmic binaries
Ritter, H. 93

Carbon abundance in β Persei and λ Tauri
Cugier, H., Hardorp, J. 101

Geodetic precession in binary pulsars
Bailes, M. 109

The nature of the four blue halo stars of Tobin
de Boer, K.S., Heber, U., Richtler, T. 113

New constraints on neutron star models of gamma ray bursts. I. EXOSAT observations of two gamma ray burst error boxes
Boer, M., Atteia, J.L., Gottardi, M., Hurley, K., Niel, M., Barat, C., Pizzichini, G., Mason, K., Branduardi-Raymont, G., Cordova, F., Laros, J.G., Evans, W.D., Fenimore, E.E., Klebesadel, R.W., Sims, M.R., Martin, C. 117

Variable polarization in X-ray binaries: HD 77581 (= 4U 0900-40)
Dolan, J.F., Tapia, S. 124

Observation of carbon monoxide emission at 370 μm in IRC+10216 and CIT6
Wattenbach, R., Krügel, E., Röser, H.P., Nett, H., Schwaab, G., Densing, R. 133

Stellar atmospheres

What does C II λ 2355 Å emission tell us about chromospheres of red supergiants? A critical test using ζ Aurigae-type K supergiants
Schröder, K.-P., Reimers, D., Carpenter, K.G., Brown, A. 136

Variability of Balmer lines in Ap stars
Musielok, B., Madej, J. 143

Non-LTE line formation in early B and late O stars. III. Singly ionized carbon
Eber, F., Butler, K. 153

(RN) Implications of model atoms and numerical approximations on structure and line profiles of non-LTE stellar atmospheres
Rauch, T., Werner, K. 159

Acceleration boundary for charged particles in the electromagnetic field of a rotating magnetic dipole
Leinemann, R. 163

Erratum: Singly ionized iron as a diagnostic of stellar envelopes. I. The methods
Friedjung, M., Muratorio, G. 322

Diffuse matter in space (including H II regions and planetary nebulae)

The Crab nebula: secular variations in the Faraday rotation of the pulsar and the great 1974–1975 scattering event
Rankin, J.M., Campbell, D.B., Isaacman, R.B., Payne, R.R. 166

The nebula L 1569: an accurate distance determination
Franco, G.A.P. 173

Blowing bubbles
Icke, V. 177

H_2CO and excited OH toward G 10.6–0.4: Another rotating disk?
Guilloteau, S., Forveille, T., Baudry, A., Despois, D., Goss, W.M. 189

IRAS pointed observations of planetary nebulae
Leene, A., Pottasch, S.R. 203

High resolution observations of the planetary nebulae NGC 6153 and IC 4593
Anandarao, B.G., Banerjee, D.P.K. 215

New Herbig-Haro objects in star-forming regions
Reipurth, B., Graham, J.A. 219

The peculiar southern H II region RCW 34
Heydari-Malayeri, M. 240

Ar III in planetary nebulae
Keenan, F.P., Johnson, C.T., Kingston, A.E. 253

The formation of interstellar jets
Tenorio-Tagle, G., Cantó, J., Różyczka, M. 256

The Sun

Radio emission of coronal shock waves
Benz, A.O., Thejappa, G. 267

Model calculations of magnetic flux tubes. IV. Convective energy transport and the nature of intermediate size flux concentrations
Knölker, M., Schüssler, M. 275

The solar system

Models of evolutionary tracks of the planets
Horedt, G.P. 284

The behavior of distant heliospheric pick-up ions and associated solar wind heating
Fahr, H.J., Ziemkiewicz, J. 295

Celestial mechanics and astrometry

Determination of the principal term of nutation from improved BIH astrometric data
Capitaine, N., Li, Z.X., Nie, S.Z. 306

Planetary theories in rectangular and spherical variables. VSOP 87 solutions
Bretagnon, P., Francou, G. 309

Instruments, data processing, and computational methods

Radio-interferometric imaging of very large objects
Cornwell, T.J. 316

Abstracts of articles which have been published in A. & A. Suppl. Ser. 73, No. 3, and 74, No. 1

Generalized extensions and blocking factors for FITS
Grosbøl, P., Harten, R.H., Greisen, E.W., Wells, D.C. 324

The FITS tables extension
Harten, R.H., Grosbøl, P., Greisen, E.W., Wells, D.C. 324

Masses and tidal radii of star clusters in the halo of the LMC. II
Metaxa, M., Kontizas, M., Kontizas, E. 324

Physical studies of asteroids. XVIII. Phase relations and composite lightcurves obtained with the Carlsberg Meridian Circle
Lagerkvist, C.-I., Magnusson, P., Williams, I.P., Buontempo, M.E., Gibbs, P., Morrison, L.V. 325

H II regions in NGC 300
Deharveng, L., Caplan, J., Lequeux, J., Azzopardi, M., Breysacher, J., Tarenghi, M., Westerlund, B. 325

Photoelectric *UBV* and photographic *RGU* photometry of the open clusters NGC 1496 and NGC 1513
del Rio, G., Huestamendía, G. 325

UBVRI photometry of the short-period eclipsing binaries EE Aquarii, RV Gruis and RW Piscis Austrini
Covino, E., Milano, L., de Martino, D., Vittone, A.A. 325

Measurements of visual double stars made at Pic-du-Midi
Couteau, P., Ling, J. 326

The H I properties of spiral galaxies in the Virgo cluster. IV. Westerbork observations of 12 field galaxies
Warmels, R.H. 326

Spectroscopic observations of the distant cluster of galaxies Abell 370: a catalogue of 84 spectra
Soucail, G., Mellier, Y., Fort, B., Cailloux, M. 326

Observations of the large-scale radio structure in high redshift quasars
Barthel, P.D., Miley, G.K., Schilizzi, R.T., Lonsdale, C.J. 326

Sixty-six newly-identified double stars
Bastian, U., Eislöffel, J., Wiese, K. 327

A map of spectral indices of the Galactic radio continuum emission between 408 MHz and 1420 MHz for the entire northern sky
Reich, P., Reich, W. 327

Isophotal contours of early-type galaxies. I. The data
Michard, R., Simien, F. 327

Systematic differences in position and proper motion between ILS catalogues and the main astrometric catalogues
Sadžakov, S., Šaletić, S.D. 327

Linear polarization observations in selected celestial zones. The Orion-Eridanus area
MacLeod, J.M., Vallée, J.P., Broten, N.W. 328

Theoretical transmittance in the near-UV, visible and near-IR through the Earth's atmosphere for several observatories
Nitschelm, C. 328

Four-colour *uvby* and Hβ photometry of all A and F stars brighter than $m_{pg} \approx 11^{m}.0$ in 4 Selected Areas at intermediate galactic latitudes
Franco, G.A.P. 328

Study of a field in the Coma Supercluster. I. Automated galaxies count
Slezak, E., Mars, G., Bijaoui, A., Balkowski, C., Fontanelli, P. 328

Radio galaxies of intermediate strength. I. VLA observations
Gregorini, L., Padrielli, L., Parma, P., Gilmore, G. 329

Narrow band 1 μm–4 μm infrared photometry of 176 stars
Selby, M.J., Hepburn, I., Blackwell, D.E., Booth, A.J., Haddock, D.J., Arribas, S., Leggett, S.K., Mountain, C.M. 329

Asymptotic giant branch stars in the IRAS catalogues. Selection and analysis of the population characteristics
Herman, J. 329

The partition functions of JANAF polyatomic molecules that significantly affect the stellar atmospheric equation of state
Irwin, A.W. 330

New data on the kinematics of the interacting system Markarian 171
Augarde, R., Baranne, A., Figon, P., Le Flohic, J.M., Lelièvre, G., Levacher, P., Sellier, A., Servan, B., Wlérick, G. 330

Photometric reddenings of stars in emission nebulae of the Magellanic Clouds
Greve, A., van Genderen, A.M., Laval, A., van Driel, W., Prein, J.J. 330